mm., although in La Coronilla they do not exceed 50 mm. Also, the last whorl in *auricularia* is bluish, with the fasciole band and adjacent zone pale-brown, while *teaguei* is entirely white (except for the mentioned spots which are not present in *auricularia),* has an interior of violaceous-brown, is clearer on the outer lip and on the siphonal notch. *O. auricularia* (figs. 6, 7) has only 4 or 5 horizontal folds which are thick and parallel and very short above the basal fold, and has the rest of the columellar callus completely smooth. The columellar callus extends to the apex, which generally is covered by the enamel, while in *O. teaguei* the apex is free.

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THREE NEW UNIONIDS FROM ALABAMA AND FLORIDA AND A NOTE ON LAMPSILIS JONESI

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Few new species of unionids may be found in North America today. Most areas have been well explored, especially the Alabama and Tennessee River systems which still support an exceedingly rich unionid fauna. The greatly varied *Elliptio* fauna of central Florida has been well collected and many names have been applied to its forms. The streams of western Florida have not been so thoroughly worked. This statement appears to be particularly applicable to the lower Choctawhatchee, the Yellow, the lower Escambia and the Perdido Rivers. Two of the new unionids described herein are from one of these streams, the Choctawhatchee River.

ALASMIDONTA MCCORDI, new species. Plate 9, figs. a, b.

Description. Shell medium-small in size, the type 58 mm. (about 2¼ inches) in length, oval in outline, fairly thin in structure and inflated. Color tawny with broad and narrow rays of dark green which are strongest on the disc. Posterior slope slightly concave

below the ligament. Posterior ridge low, rounded. Umbos slightly anterior of center, fairly high, swollen and turned forward over a lunule. The portion of the disc behind the posterior ridge is moderately swollen. Shell tapers off abruptly anteriorly. Periostracum shining on the disc, roughened posteriorly and becoming cloth-like anteriorly where it exhibits many fine growth lines.

Nacre pearly, slightly iridescent, blotched in the vicinity of the beak cavity. Pseudocardinal teeth small, erect, one in the left valve and with the vestige of another behind it; two in the right valve. Lateral teeth nearly absent, there being a vestige of a single one in the left valve and a double one in the right valve. Muscle scars large, the anterior adductor scar somewhat impressed.

Type. Holotype is deposited in the National Museum of Canada as catalogue number 20094. No other specimens are known to exist at the present time. Holotype collected by the author on August 2, 1956. Measurements: length 58 mm, height 40 mm, breadth 25 mm.

Type Locality. Coosa River, Ten Island Shoals, just below old Lock 2 Dam, three and two-tenths miles south of Greenport, St. Clair County, Alabama.

Remarks. This specimen was collected alive on a sand and gravelly bottom which was thickly strewn with rock debris from Lock 2 Dam. The water here was swift and shallow. The valves are slightly mis-shapen and the growth lines are not entirely concentric. Apparently during its juvenile stage, this specimen was wedged between two rocks. Certainly this does not account for its appearance of uniqueness as a new species, however.

This species does not closely resemble any other American species. Exteriorly, the shell may be compared with *Alasmidonta calceola* Lea. *A. mccordi* is much higher and a little more inflated than the latter. Its rays are narrower and more widely spaced but like *A. calceola,* these rays extend across the entire disc. Interiorly, the hinge teeth resemble those of *Lasmigona holstonia* Lea. The delicate cardinal teeth are located slightly forward of the beak cavity as in *L. holstonia.*

This species is named in honor of John McCord of Cleveland, Tennessee, an esteemed colleague.

LAMPSILIS HADDLETONI, new species. Plate 9, figs. h, g.

Description.—Shell rather small in size, mature specimens measuring 30 mm. (1 3/16 inches) in length, subelliptical in outline, thin in structure, scarcely inflated, and with the lip only slightly thickened. Color tawny, smoky on the disc and anteriorly with

well defined narrow rays on the posterior slope. Posterior ridge low, rounded, having a very slight tendency to be double. Umbones anterior of center, low and much corroded. Beak sculpture not seen. A dorsal view of both type specimens shows their greatest diameter to be centrally located. Ligament tawny, moderate in width and about ¼ length of shell. Periostracum smooth and shining over the entire surface and having a waxy appearance.

Nacre flesh colored dorsally and anteriorly, pearly along the ventral margin and posteriorly, and very iridescent posteriorly. Anterior muscle scars deep and well defined. Posterior scars faint and with nacre iridescent within. Lelt valve with 2 curved laterals and 2 pseudocardinal teeth. Right valve with one curved lateral tooth, one stubby pseudocardinal tooth and two vestigial pseudocardinal teeth.

Type lot.—Holotype is deposited in the National Museum of Canada as catalogue number 20095. The paratype is in the collection of the author as catalogue number 6705. These two mature specimens were collected by the author on September 23, 1956.

Measurements			
Length (mm)	Height (mm)	Breadth (mm)	
30	23	12.5	Holotype.
30.5	22	12.5	Paratype.
Length	Height	Breadth	

Type Locality.—Choctawhatchee River, West Fork, seven miles southwest of Ozark, Dale County, Alabama.

Remarks.—The distribution of this species is probably restricted to the headwaters of the Choctawhatchee River system, where it is very rarely found. The type shells were collected on a shoal which was xtensively worked over with a hoe. *L. haddletoni* appears somewhat similiar to *L. ochracea* Say. It is smaller than that species, less inflated, the shell thicker, and the cardinal teeth are much larger. The species differs from *Villosa choctawensis* Athearn (herein described by its orbicular outline, flesh colored nacre and in particular in the coloration of the epidermis. The epidermis of *L. haddletoni* is darker anteriorly on the disc while it is lighter near the ventral margin and on the posterior slope. Rays are prominent only on the posterior slope. The epidermis of adult *V. choctawensis* is dark throughout except in the vicinity of the umbones where it appears lighter and exhibits fine rays.

I take pleasure in naming this species after my good friend and colleague Arthur Haddleton Clarke, Jr. of the National Museum of Canada.

VILLOSA CHOCTAWENSIS, new species. Plate 9, figs. c, d, e, f.

Description.—Shell small in size, measuring up to 42 mm (about 1 5/8 inches) in length, subelliptical in outline, moderately thin in structure, somewhat inflated, and with the lip slightly thickened. Color brownish black to chestnut brown, often lighter in the vicinity of the umbones, young specimens usually a greenish brown and often exhibiting fine rays. Posterior ridge poorly defined, low and rounded. Sexual dimorphism pronounced. Female specimens truncate or widely rounded posteriorly, male specimens more evenly rounded and sometimes bluntly pointed. In addition, females are usually slightly more inflated. Umbones well anterior to center, wide and full. Beak sculpture consisting of 4 or 5 thin and slightly undulating ridges. Greatest diameter of shell just behind the beaks. Ligament about 1/4 length of the shell and of moderate width. Periostracum usually smooth and shining on the upper disc, but roughened closer to the ventral margin and on the posterior slope.

Nacre consistently whitish in color, sometimes slightly blotched and somewhat iridescent posteriorly. Anterior muscle scars well defined, the adductor scar being especially deep. Posterior scars poorly defined. Left valve with 2 laterals and 2 pseudocardinal teeth. Right valve with one lateral tooth and the vestige of a second, one large erect pseudocardinal tooth and usually 2 vestigial pseudocardinal teeth.

Type lot.—Holotype, NMC 20096 deposited in the National Museum of Canada. Paratypes are deposited in the United States National Museum, Museum of Comparative Zoology, Academy of Natural Sciences of Philadelphia, University of Michigan Museum of Zoology, Florida State Museum and the collection of the author. Type and paratypes collected by the author on November 28, 1958.

Measurements

Length (mm)	Height (mm)	Breadth (mm)	
37	26	16.5	Holotype.
32	23	14	Paratype from type locality.
42	27	18.5	Choctawhatchee R., Roaring Cutoff,
34	24.5	15	2.6 mi. NE of Redbay, Walton Co., Florida.
38	27	18	Choctawhatchee R., about 3½ mi. SE
35	25	16	Hinsons Cross Roads, Washington Co., Florida.
30	21	13.5	Choctawhatchee R., Waterford, 1.1 mi. N. of Newton, Dale Co., Alabama.

Type Locality.—Choctawhatchee River, two miles southwest of Caryville; about one mile downstream from U. S. Highway 90, Holmes County, Florida.

Remarks.—V. choctawensis lives in moderate to swiftly moving water, on sandy bottom. The type specimens were collected on sandy bottom which was free of mud. In this kind of environment, the periostracum tends to be rather shining on the disc. On sand bars which contain mud rich in vegetable detritus, the species grows larger and the periostracum becomes coarser with heavier lines of growth. The Roaring Cutoff lot is of this latter sort.

V. choctawensis has probably been mistaken for *Pleurobema strodeanum* B. H. Wright by collectors in the past. The males of *V. choctawensis* are strikingly similar to that species. However, they lack the consistently well defined posterior ridge of *P. strodeanum*. The male and female shells of *P. strodeanum* are essentially alike as is characteristic of shells of the genus *Pleurobema* (Simpson, 1914) . Sexual dimorphism is well defined in specimens of *V. choctawensis*.

The nacre of the posterior area of *V. choctawensis* lacks most of the bluish appearance found in that area in *P. strodeanum*. *V. choctawensis* is in some respects similar to *V. villosa* B. H. Wright but is much shorter than that species.

This species is named in honor of the Choctaw Indians.

LAMPSILIS JONESI van der Schalie.

Clench and Turner (1956) list the known naiades of west Florida together with their descriptions and much other valuable data. Their synonomy of *Lampsilis jonesi* van der Schalie as *Lampsilis australis* Simpson, however, is not correct. These two species may be distinguished as follows: the posterior ridge of *L. jonesi* is double with each valve exhibiting a characteristic scalloped edge between the extremities of these ridges; the periostracum of *L. jonesi* is somewhat coarser than that of *L. australis*, the latter species exhibiting a smooth, often glossy effect; *L. jonesi* is more cylindrically shaped while the lateral outline of *L. australis* is rather evenly elliptical and the shell not so inflated. The two species were collected from the same shoal of the West Fork, Choctawhatchee River, about 7 miles SE of Ozark, Dale County, Alabama. I experienced no difficulty in separating the 35 specimens of *L. australis* from the 98 specimens of *L. jonesi* taken at

that station.

Sexual dimorphism is well pronounced in the adult stages of *L. jonesi*. Female specimens exhibit a general swelling of the disc below the posterior ridge. In *L. australis* sexual dimorphism sometimes may be noted, but only by a greater rounding of the ventral margin.

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NOTES AND NEWS

Formation of an epiphragm and true aestivation in Melampidae.[1]—Members of the family Melampidae are usually considered as extremely primitive Pulmonata. In particular, up to now, they have been regarded as incapable of any specialized means for hibernation or aestivation under conditions seasonally unfavorable for activity. It is believed that epiphragm formation by members of the family Melampidae is recorded here for the first time.

Allochroa layardi H. & A. Adams 1855 was collected in numbers in apertures and pockets on the under side of coralline rubble and slabs, on the exposed reef along the south side of Amedee Island, about 12 miles off Noumea, New Caledonia, on December 15, 1960. These individuals were not active, but were resting on the walls of these (sometimes tiny) openings when found. Each one had to be detached, and picked, shaken, or jarred out of these blind holes in the coralline rock pieces. Upon checking their specific characters under the microscope, I discovered that the majority of these shells showed an epiphragm at the aperture, that had sealed the shells against excessive loss of moisture, and had fixed them against the rock surface in their hiding places. Apparently this is not an accidental or isolated

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